

IN THE CLAIMS:

The text of all pending claims are set forth below. Cancelled and withdrawn claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (previously amended), (cancelled), (withdrawn), (new), (previously added), (reinstated - formerly claim #), (previously reinstated), (re-presented - formerly dependent claim #) or, (previously re-presented).

Please AMEND the claims in accordance with the following:

1. (CURRENTLY AMENDED) An object collaboration apparatus comprising:
 - a plurality of object-oriented data structures comprising objects that cooperate by exchanging messages, where when one of the objects needs a task performed by another object it sends a request message and other objects capable of accomplishing the task automatically respond by automatically generating and sending a bid message to the requesting object and the requesting object automatically determines which one of the other objects is to accomplish the task based on the bids, with reference to a representative object, each object comprising:
 - a message receiving portion for monitoring and obtaining a requesting message transmitted over a network by another of the objects,
 - a reaction table for storing an action content which is a reaction to the message and wherein a reaction relationship of requesting messages and respective actions defined in the reaction table drives the object collaboration apparatus, and
 - an action executing portion for executing processing in accordance with the action content;
 - a requesting message sending portion for sending a requesting message in which ~~an the~~ object that initiates a task by requesting ~~requests~~-processing of the task from other objects;
 - a bidding portion for automatically generating and returning a bidding message responsive to a requesting message if an action corresponding to the task that is requested in a

the requesting message is present in the reaction table, where the bidding message is a bid for the object to process the requested task;

a bid awarding portion automatically determining, for determine, from among objects returning a bidding message, an object to which processing of the task is assigned; and

a bid awarding notifying portion for notifying the selected object of a bid awarding determination,

wherein, if there are a plurality of competing objects that can provide an action in response to the task request by executing an action in response to the requested task when receiving a bid awarding notification, the selected object, of which task processing is requested, is determined by a bidding system.

2. (ORIGINAL) The object collaboration apparatus according to Claim 1, wherein the bid awarding portion uses, as one bid determining parameter, a communication time that is necessary for communication between the task initiator object and the objects sending the bidding message, and preferentially awards a bid to an object that has a short communication time between objects.

3. (ORIGINAL) The object collaboration apparatus according to Claim 1, wherein the bid awarding portion uses, as one bid determining parameter, an empirical value of past processing performances for similar tasks of the objects sending a bidding message, and preferentially awards a bid to an object that is expected to have a high processing performance for the requested task.

4. (ORIGINAL) The object collaboration apparatus according to Claim 1, wherein the bidding portion includes, in a bidding value, a bidding parameter that shows its own condition with respect to a task for which the bidding portion returns a bidding message, and the bid awarding portion determines a bid-winning object using the bidding value as one bid determining parameter.

5. (ORIGINAL) The object collaboration apparatus according to Claim 4, wherein the bidding portion sends the bidding message using, as one bidding parameter, processing

resources that can be assigned to a requested task processing, and the bid awarding portion selects an object having a bidding value indicative of large processing resources that can be assigned, and preferentially awards a bid to the selected object as the bid-winning object.

6. (ORIGINAL) The object collaboration apparatus according to Claim 4, wherein the bidding portion sends the bidding message using, as one bidding parameter, an object load ratio showing a ratio of the already assigned processing resources to the bidding object's original processing resources, and the bid awarding portion selects, from the object load ratios in the bidding values, an object having a small load that is already assigned, and preferentially awards a bid to the selected object as the bid-winning object.

7. (ORIGINAL) The object collaboration apparatus according to Claim 4, wherein the bidding portion sends the bidding message using, as one bidding parameter, a computer load ratio indicating a ratio of the already assigned processing resources to the processing resources of a computer that is executing the bidding object, and the bid awarding portion selects, from the computer load ratios in the bidding values, an object that is executed on a computer having a small load that is already assigned, and preferentially awards a bid to the selected object as the bid-winning object.

8. (ORIGINAL) The object collaboration apparatus according to Claim 4, wherein the bidding portion sends the bidding message using, as one bidding parameter, a skillfulness at the task, which is based on resources available to the bidding object, and the bid awarding portion selects an object that is good at processing the requested task, and preferentially awards a bid to the selected object as the bid-winning object.

9. (ORIGINAL) The object collaboration apparatus according to Claim 1, wherein the task initiator object has a bidding portion that generates a bidding message in response to the requesting message sent by the task initiator object, and the bid awarding portion processes the bid awarding selecting an object in accordance with bidding messages sent from both other objects and a bidding messages from the own terminal's bidding portion and selects the most appropriate object for the task processing from among all objects including itself.

10. (CURRENTLY AMENDED) A volatile or non-volatile computer-readable ~~recording medium-storage~~ storing a program for realizing an object collaboration apparatus, the program realizing:

a plurality of object-oriented data structures comprising objects that cooperate by exchanging messages, where when one of the objects needs a task performed by another object it sends a request message and other objects capable of accomplishing the task automatically respond by automatically generating and sending a bid message to the requesting object and the requesting object automatically determines which one of the other objects is to accomplish the task based on the bids, with reference to a representative object, each object comprising:

monitoring and obtaining a requesting message transmitted over a network by any of the objects;

storing a reaction table for storing an action content which is a reaction to the message, wherein a reaction relationship of requesting messages and respective actions defined in the reaction table drives the object collaboration apparatus; and

executing processing in accordance with the action content;

a requesting message sending for sending a requesting message in which ~~an~~ the object ~~that initiates a task requests by requesting~~ processing of the task from other objects;

a bidding for automatically generating and returning a bidding message responsive to a requesting message if an action corresponding to the task that is requested in a requesting message is present in the reaction table, where the bidding message is a bid for the object to process the requested task;

a bid awarding ~~for~~ automatically determining, from among objects returning a bidding message, an object to which processing of the task is assigned in the bidding; and

a bid awarding notifying for notifying the recipient object of a bid awarding determination in the bid awarding ,

wherein, if there are a plurality of competing objects that can provide an action in response to the task request by executing an action in response to the requested task when receiving a bid awarding notification, the bid-winning object, of which task processing is requested, is determined by a bidding system.

11. (NEW) A method of object collaboration for three or more objects dispersed over a network in an objected-oriented system, where the objects comprise object-oriented data structures, where any one of the objects can be a first object initiating a task, where a second object is capable of accomplishing the task by performing a corresponding action in an action table of the second object, where a third object is also capable of accomplishing the task by performing another corresponding action in an action table of the third object, where each action table comprises request-action pairings for its respective object, and where the action of the second object is substantially different than the action of third table, the method comprising:

at the first object, initiating a task of the first object by sending over the network a message indicating the task;

at the second object, receiving the message, and in response the second object referring to its action table and the action therein that corresponds to the task indicated by the message to generate a bid message with a bid value with which the second object bids on potentially performing its action to accomplish the task indicated by the message;

at the third object, receiving the message, and in response the third object referring to its action table and the action therein that corresponds to the task indicated by the message to generate a bid message with a bid value with which the third object bids on potentially performing its action to satisfy the task indicated by the message; and

at the first object, receiving the bid message of the second object and receiving the bid message of the third object, and in response using the bid values to determine which of either the second or third object is to perform its respective action to accomplish the task initiated by the first object.